

## **Chapter 12A & B**

## **Physical Science**

Read pages 278 – 287. Answer in complete sentences.

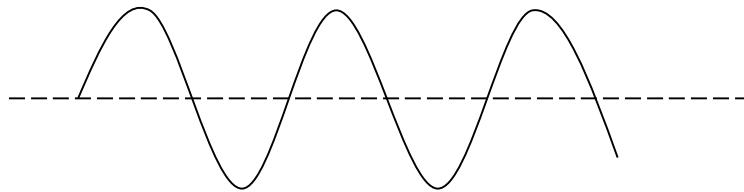
1. What is periodic motion?
2. List three examples of periodic motion.
3. If the period of a system gets larger, does the frequency for the system get larger or smaller?
4. What is a restoring force?
5. A 5-kg mass is hung on the end of a spring in System A. A 10-kg mass is hung on the same kind of spring in System B. Which mass moves faster when they are displaced by the same amount?
6. What causes damping?
7. What happens to the amplitude of a vibration as it is damped?
8. Resonance is when energy is added to an oscillating system and the amplitude of its vibrations increases. One of the best known examples of resonance is the collapse of the Tacoma Narrows Bridge. The winds added energy to the bridge and it started to twist and sway. The oscillations got so big, the bridge failed. Watch the video of the bridge at <http://www.archive.org/details/SF121>. Remember, this bridge is made of steel. Write down your thoughts about the video.
9. What did the Foucault pendulum prove?
10. List the two factors that affect the period of a pendulum.
11. Pendulum A is shorter than Pendulum B. If both are displaced the same amount from their resting position, which one is going to have a larger period (time it takes to swing back and forth one time)?

## **Chapter 12C**

## **Physical Science**

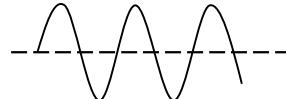
Read pages 288 - 291. Answer in complete sentences.

1. What's a difference between mechanical waves and electromagnetic waves?
2. What Greek letter represents wavelength?
3. What unit is used to measure frequency?
4. All mechanical waves require a medium. What is a medium?
5. Label these parts of the wave: Wavelength, crest, wave height, trough, amplitude



Use the formula on page 290 to solve Problem 6 and 7.

6. A guitar string has a length of 0.7 m. If it vibrates at a frequency of 400 Hz, what is the speed of the wave?
7. Light has a speed of  $3 \times 10^8$  m/s. If the wavelength of the light is  $7 \times 10^{-7}$  m, what is its frequency?
8. Which wave is transverse and which is longitudinal?



9. What is the difference between how transverse waves vibrate and how longitudinal waves vibrate?
10. List an example of a transverse wave (don't use vibrations on a string).
11. List an example of a longitudinal wave (don't use sound waves).